Rationale for Multigrade Pedagogies

1. Ground Realities

Releasing its 2012 Report on the state of elementary education in India's countryside, the head of ASER, an agency that since 2005 has annually published a Status of Education Report, summed up the evidence gathered from the most recent survey in the following chilling words:[1]

- 'The crisis in mass education is far deeper at every level than most people imagine.'

- 'Fewer and fewer children in successive batches reaching 3rd and 5th standard are learning basics of reading and math. Unless someone can show that children are learning something else better, this indicates an alarming degeneration..'.

- 'In 2008, the proportion of children in Std 3 who could read a Std 1 text was under 50%, which has dipped about 16 percentage points to nearly 30%. A child in Std 3 has to learn to do two digit subtractions, but the proportion of children in government schools who can even recognize numbers up to 100 correctly has dropped from 70% to near 50% over the last four years with the real downward turn distinctly visible after 2010, the year RTE came into force. These downward trends are also reflected in Std 5 where a child would be expected to be able to at least Std 2 text and solve a division sum. Private schools are relatively unaffected by this decline but a downturn is noticeable, especially in math beyond number recognition.'

2. Analysis of Ground Realities

The series of studies annually conducted by ASER since 2005, and a 2011 joint study by ASER-MHRD-UNICEF-UNESCO on teaching learning in 5 states (AP, Assam, Jharkhand, HP, and Rajasthan) conducted in 2011 presaged the reality summed up above. The set of studies point to the considerable variation between the age of a child, her academic competence, the study materials, largely in the form of age-specific textbooks, she has access to, and the standard or grade to which she is assigned. For instance, among the key findings of the 2011 study are the following:[2]

- At each grade level, children's starting point is well below that of textbooks.

- Average number of children present in each classroom is low, but most classrooms are multigrade.

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[1]   Chavan, Madhav, 'Uphill Battle Ahead as Outcomes Go Downhill' In 'Inside Primary Schools: A Study of Teaching and Learning in Rural India'. www,asercentre.org

[2]   'Inside Primary Schools: A Report on Teaching and Learning in Rural India' :www.asercentre.org. <http://images2.asercentre.org/homepage/tl_study_print_ready_version_oct_7_2011.pdf>

- Children are learning in the course of a year, but even in states with the best learning outcomes, children's learning levels are far behind what textbooks expect.

After concluding that 'Even though most classrooms comprised children from different grades, there was little evidence of teaching methods that catered to the diverse needs or student abilities', the 2011 Report lists the strategy teachers, who are required to teach from age-specific textbooks, resort to in government schools:

> The most frequently observed teaching methods were writing on the blackboard (63% of all classrooms) and reading from the textbook (61%). In contrast, teachers were observed using teaching learning material other than the textbook in barely 10% of all classrooms. [3]

Following these observations the 2011 report offers the following somewhat perfunctory advice.[4]

> Multigrade classroom situations introduce even more complexity to the teacher's task, since in addition to dealing with variations in age and ability she must also cover content prescribed for each grade separately. One way to deal with this situation is to provide appropriate training to teachers to equip them to handle multiple grades at the same time. Another option is to break away from the traditional grouping of students by grade for all or part of each school day, and group children by learning level instead. Given that in every grade there are children at different levels in terms of basic language and math abilities, this strategy would allow teachers to deal with groups of students that are homogeneous at least along one dimension – learning levels – and utilize materials and methods appropriate to help them master the appropriate learning goals.[5]

A host of separately conducted assessments highlight the urgent need for reform of the education system in India. India's one-time participation in *The Programme for International Student Assessment* (PISA) poignantly highlights India's low ranking in the world of education. Introduced in the year 2000, PISA measures the academic achievements of fifteen-year-old students across the globe. Tests in mathematics, science and language are conducted throughout specially chosen school districts in countries that invite such evaluations. Nations are then ranked according to student achievement. The comparative study is meant to draw attention to government policy, and a need for reform. India backed away after its first and only 2009 attempt; it will not participate in the 2015 assessments.

PISA is an outgrowth of globalization. The backdrop to the study is a world in which nations compete for the world's resources and for cognitively skilled persons who will 'transform these resources into products and processes that compete successfully on world markets'. It is no wonder then that PISA tests competences in English, mathematics and science. The assumption is that the future belongs to technologically adept peoples of the world. India's investment in academies of higher learning such as IITs and ISERs but has had very little success in creating appropriate structures for elementary schools serving the underprivileged. In pursuit of a more equitable educational environment for India's citizens, Parliament passed

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[3] Inside Primary Schools, p. 35. Op. cit.

[4] cf. Anita Kaul's observation: '….multigrade/ multilevel teaching is not possible in a textbook driven syllabus. Indiangovernance.gov.in
<http://indiagovernance.gov.in/files/nail_kali_innovations_in_primary_education_in_karnataka.pdf>

[5] 'Inside Primary Schools ' p. 85 Op. cit.

The Children's Right to Free and Compulsory Education Act (RtE) in 2009. Subsequent to the passage of the Act, more than 90% of India's children are now in school. Unfortunately, enrolment in school has not led to a commensurate gain in learning outcomes.

Angela Little is one of the foremost experts on multigrade education. She believes that teachers' difficulties in multigrade classrooms are due to policy failures. Classrooms can be multigrade by design or by default. Montessori classrooms are examples of the former; the latter are exemplified in classrooms whose learning outcomes are reflected in the ASER studies, that is, in schools that cater to children of marginalized communities: children of shepherds, subsistence farmers and construction workers. Angela Little highlights the divergence between the two types of classrooms, and the general direction for reforming the existing system,[6]

> For children to learn effectively in multigrade environments teachers need to be well trained well resourced and hold positive attitudes to multigrade teaching. However, many teachers in multigrade environments are either untrained or trained in monograde pedagogy; have few if any teaching/learning resources, and regard the multigrade classroom as the poor cousin of the better-resourced monograde classroom found in large, urban schools, staffed by trained teachers.

Following Angela Little's analysis, we ascribe the failure of Indian education for the marginalised sections of society to a system wherein teachers who are not equipped to deal with multi-level classes teach students in multilevel classrooms from age-specific textbooks. These are classes wherein teachers trained in monograde teaching either ignore children at the bottom of the class or make them learn answers by rote.

A trained Multigrade-Multilevel teacher is one who, in the same classroom, teaches children of different ages, of varying abilities and belonging to different grade levels. A multigrade classroom, also known as mixed age classroom or vertically grouped classroom and as ABL[7] in India, accommodates children of different ages with disparate learning backgrounds.

To be effective, teachers in multigrade classrooms need to be provided with pedagogical material that addresses the needs of each child in the class, in other words with instructional material graded into levels. The teacher will have to be educated to discern the learning level of each child, and plan her trajectory through a subject discipline; for instance, that a child will have to learn to add before she learns to multiply. Moreover, time constraints will require that students are divided into smaller groups, and teachers taught to understand the principles according to which these groups are formed.

In contrast, students in monograde classrooms are horizontally grouped so that pupils of more or less the same age learn together; it is assumed that the group is homogeneous, and consists of pupils whose learning capacities are within a more or less well defined band of competences. Teachers in India teach from prescribed textbooks and students keep up with a time schedule set by teachers, under the supervision of principals and in accordance with the generally accepted norm that teachers are obliged 'to cover' the syllabus within a prescribed time span. Students are expected to fall in step with these schedules.

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[6]   Little, Angela *Education for All and Multigrade Teaching*. (Ed.) Dodrecht, The Netherlands: Springer, 2006, pp-7-8

[7]   Activity-based learning can be an aspect of monograde classrooms as well as multigrade classrooms. For the purposes of this paper, however, we follow the current Indian practice of restricting the use of the word to classrooms that are multigrade by design.

3. Acknowledging Ground Realities

Declining standards in education reflected in ASER reports and India's low standing in international surveys of education call for deeper and more sustained analysis of widely prevalent and deeply embedded pedagogical preconceptions. One fundamental issue for policy makers to consider is whether to convert existing multigrade classrooms to monograde ones, where children of similar ages study from 'age specific' textbooks, as RTE demands. Or, whether they intend putting in place appropriate all of which are beyond the scope of this paper. Suffice it to say that bringing standards up to a homogeneous levels without the use of some sort of multi-grade pedagogy will require a great deal of ingenuity. Our goal here is to portray the multigrade methodology Rishi Valley Institute of Educational Resources (RIVER) MGML in some detail, and demonstrate its relevance to the present educational scenario. Whatever path policy makers choose, whether they opt for monogradeor multigrade structures, the existing system will require fundamental reform.

Large-scale restructuring of an already established educational programme is complex and requires a full-scale marshalling of human resources at both administrative and academic levels. Policy makers have to be convinced that reform is necessary and prepare the ground for sustaining the reform over the long term. Education Officers have to comprehend the changes envisaged, and provide support to teachers both directly as well as by creating opportunities for teachers to network; teachers have to be willing to change their habitual practices and prepare to retrain in the newer methodology. That the contribution of the educational bureaucracy cannot be underestimated is underscored by several studies.[8]

Tricia Niesz and Ramachandar Krishnamurty attribute the success of the 'large scale, rapid pace, and radical nature of educational change [that] sets the ABL initiative [in Tamil Nadu] apart from most school reform efforts' to the Tamil Nadu State administration:

> State-level administrators, whom we consider bureaucratic activists, engaged strategies for change that combined both movement-building tactics and the conventional tools of administrative power. These reformers became pedagogical experts, expended considerable time and effort promoting the method, and engaged in a participatory, grassroots approach to pursuing the ABL reform within the state education sector. The egalitarian spirit with which ABL was promoted appeared to contribute to a moral authority and good will that generated support even when administrators used traditional tools of bureaucratic power, including top-down mandates, to institutionalize the reform.[9]

The ABL programme referred to above is a multigrade programmepioneered at RIVER in early nineties is also known as the MGML programme. Adapted to suit local conditions, it is practised in pockets across India's linguistically diverse states.

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[8]   Glennan, Thomas K., Jr. et. al. *Expanding the Reach of Educational Reforms,* www.rand.org<http://www.rand.org/content/dam/rand/pubs/monographs/2004/RAND_MG248.pdf>

[9]   See Niescz, Tricia and Krishnamurthy, Ramchandar, (2013). 'Bureaucratic activism and radical school change in Tamil Nadu, India' in Journal of Educational Change, February 2013, 14(1), pp. 29-50; cf. an abstract of the article in <http://link.springer.com/article/10.1007%2Fs10833-012-9194-1>

4. The RIVER Methodology

Background History

RIVER'S experiment in multigrade pedagogy emerged in the early nineties as a consequence of Rama and Padmanabha Rao's observation of the teacher student relationship in government schools, and the problems posed by existing textbooks and classroom arrangements. Though the sample consisted of a few schools located near Rishi Valley, the wide disparities of learning levels in each classroom struck them, and they arrived at the same conclusion reached by the ASER-MHRD-UNICEF Report in their 2011 survey - that the typical classroom in the countryside is multigrade.[10] The earlier pedagogies practised at Rishi Valley[11] had emerged from normative positions – education should be non-authoritarian, should not be based on fear, should not promote competition – in the context of children in schools with teachers educated in multigrade methods. The Raos' commitment to creating 'schools without fear' had to surmount the pedagogical confusions they observed in government schools: teachers ill-equipped to handle multigrade classrooms and the difficulties they faced with existing textbooks. In other words, the problems the Raos encountered on the ground became their point of departure. And that was as it should be because they were dealing with children struggling to remain in school, where teachers were inadequately educated and often absent. The ground reality, the Raos' analysis of that reality, and the solution they arrived at are illustrated in the following interview from the nineties[12]:

> How do you address absenteeism in the schools, and how do you sustain children's interest and how do you again pull them back into the mainstream? Because we can't allow them to be left behind, at the same time we can't push them unnaturally. So you need to allow children to progress at their own pace, to do some activities and then catch up with the core group of the class, because ultimately all are expected to write the annual examination in the month of February.

> That was the given situation and that is why we thought we would organize each lesson into smaller, manageable and meaningful units. So the teacher doesn't have to prepare a lesson plan as such but is guided [through the lesson] by unit plans. So that was the main decision, the key element, which has actually evolved into this so-called 'School in a Box'. It was a decision to do away with the textbooks and replace them with cards that are sequentially put together, and include games to promote understanding of the concept, its application, and allow children to do things and learn by themselves.

The National Policy on Education (NEP), 1986, published by the Government of India warned that in the absence of meaningful standards, students go through elementary school without learning to read and write.

> Thirdly and fundamental to the issue, there is the widely held perception that in a vast majority of government and municipal schools children can barely read their own textbooks even after spending as many as five years in school, Considering that, to a large number of

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[10]   See fn. 2
[11]   See the attached document, 'History of MGML at Rishi Valley and its Environs' (2013)
[12]   Chandrika Mathur, Interview with Padmanabha Rao, 1997 (unpublished) Rishi Valley Archives.

them, opportunity for education is not likely to be available beyond the primary stage and what they learn here must sustain them throughout their lives, it becomes imperative that the educational system makes sure that these precious school years of the children are not wasted.[13]

That the warning went unheeded becomes obvious when you read the national surveys on the state of elementary education in India's countryside by ASER, which has conducted studies on the state of India's education since 2005[14]. The Annual Status of education Report (ASER), conducted each year since 2005 in all rural districts of the country, shows that in 2010, 53% of Std 5 children in rural India could read a Std 2 level text and 36% could solve a three digit by one digit division problem. Nationally, this situation has hardly changed over the six year period for which ASER data is available. These figures could as well be read as representing multigrade classrooms, except that the classrooms were neither furnished with material suitable to multigrade instruction nor were teachers educated to handle students with varying abilities.[15]

The RIVER MGML developed to solve problems endemic in the Indian countryside has the following features:

- It can be scaled up, without the standardization, such scaled-up programmes tend to require. In fact, it is one of the few *scalable* multigrade methodologies being practised in India today
- It is inclusive: it accommodates quick learners as well as slow learners and has been tried with some success in case of children who are emotionally disturbed
- It permits drop-outs to return to school without creating permanent gaps in their learning of a subject
- It is flexible and can be customized to suit local requirements
- It builds in continuous and comprehensive assessment required by the 2009 RtE legislation
- It facilitates comparative analyses of schools.

Scale-Up of RIVER's MGML/ABL Methodology

With the participation of UNICEF and in partnership with State Governments and NGO groups, the MGML methodology, also known as ABL and MAML methodology, has spread to several parts of India's linguistically diverse states, including Karnataka, Tamil Nadu, Chhattisgarh, Gujarat, Andhra Pradesh, Assam, Bihar, and West Bengal. In some of these states the programme exists in pockets, in others it covers entire districts. According to the

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[13]   Government of India Ministry of Human Resource Development, Department of Education http://www.teindia.nic.in/mhrd/50yrsedu/r/2S/Book2S.htm
[14]   www.asercentre.org
[15]   See Herzberger, Radhika, Kumaraswamy A, 'Independent Schools as Resource Centres'.: http://www.india-seminar.com. 'In Andhra Pradesh, and the state is no exception, 0.8% of students in class five who are non-literate; 4.7% who recognize only letters; 23.8% recognize whole words; 23.8% who read at class one level; and 56.6% at class two levels; the number who read to their age level is negligible. (ASER, 2010)'

most recent UNICEF Report, 'the programme covers 'over 250,000 primary schools across the country and more than 10 million children in over 13 states'.[16]

The scale-up of the methodology is achieved through what are known as Designer's Workshops. Government agencies and NGO groups send writers, illustrators, teachers and resource persons to RIVER

- To trans-create the first two levels of the pedagogical content in local languages and cultural idioms
- To educate resource teachers in classroom transactions suited to the new methodology so that they are able to disseminate it on their home ground. The Resource persons have a two-fold task, learning to transact the methodology in the classroom and transferring the methodology to groups of teachers in their home state
- To communicate to administrators of the project that the physical design of MGML classrooms is child-friendly: that, for instance, the blackboards placed at the child's eye level is her individual space to express herself and for a group of children to engage with each other's work. That teachers sitting on the floor next to a student group promotes a non-authoritarian pedagogy and a democratic spirit in schools.
- To set up *in situ* model schools that provide living illustrations of a successful MGML classroom, which can serve as a continuing learning model for teachers not exposed to it.

Tamil Nadu hasscaled up the model to several districts in the State, where it has been extensively evaluated by Amukta Mahapatra[17], S. Anandalakshmy,[18] and R. Akila[19].Key elements of their findings are listed below along withresults from national surveys by ASER, Educational Initiative and NCERT. Findings from Karnataka's Nali Kali, one of the earliest states to experiment with MGML, find a place in what follows.

Improvement in Academic Achievements

Even through comparative data on learning outcomes before and after the introduction of the MGML/ABL methodology are not widespread, NCERT's 'National Learning Achievement Surveys show considerable improvements in learning levels in ABL classrooms. A recent UNICEF Desk Report (2013) while admitting that the survey does not establish a direct causal link between the introduction of the new methodology and improvement in learning levels, concludes that 'it is reasonable to assume' that ABL did contribute significantly to raising outcomes. ' [From] Round 1 (2007 – before ABL) to Round II (2009 – after ABL): from 66.5% to 79.7% in Language and from 53.5% to 75.2% in Math, [placed] Tamil Nadu first among all the states in 2009 in both subjects.'[20]

[16] *Activity-Based Learning In India: Overview, Strengths, & Challenges* (UNICEF Desk Report, 2013), p. 3

[17] 'Activity Based Learning: Effectiveness of ABL under SSA' 2009. www.**ssa**.**tn**.**nic.in** <http://www.ssa.tn.nic.in/Docu/Effectiveness%20of%20ABL%20under%20SSA.pdf>

[18] Activity Based Leearning: *A Report on an Innovative Method in Tamil Nadu*, www.**ssa**.**tn**.**nic.in** <http://www.ssa.tn.nic.in/docu/abl-report-by-dr.anandhalakshmi.pdf>

[19] A *Trigger for Change: An Evaluation of ABL in Tamil Nadu,* www.**ssa**.**tn**.**nic.in.** *2009.*<http://www.ssa.tn.nic.in/CBE.htm>

[20] Activity-Based Learning in India: Overview, Strengths and Challenges (UNICEF Desk Report, 2013),

That academic competencies are communicated during school hours through inbuilt remediation is independently supported by several reports, including R. Akila's:

> Above 80% of the parents were also glad to inform that they did not suffer from any pressure to prepare their children for exams, but did monitor children's homework.[21]

The implication of this last achievement is significant in view of the following study by an educational foundation set up by the Nobel Laureate Amartya Sen. According to a Pratichi Foundation report, Indians spend several billion rupees on out-of school-tuition, a practice that is spreading to the countryside. Sen's comment on the phenomenon, known as 'shadow education', that 'private tutoring divides the student population into haves and have-nots; it makes teachers less responsible . . .' needs to be factored into any recommendations for improving the quality of schools for the disadvantaged. [22]

A national Student Learning Survey (SLS2010) conducted in 2007 by Educational Initiatives (IE) ranks Tamil Nadu fifth in the country in language and seventh in class 4 mathematics. The same agency conducted a survey in 2007 for UNICEF's Quality Improvement Programme (QUIP) and concluded that 'Students in Quality Package Project were doing well compared to average rural and urban government schools. . . but not reaching 'age-appropriate competencies'.[23]

Amukta Mahapatra's Report unambiguously reports distinct improvements in standards:[24]

> Average achievement of children increased significantly in all subjects:During the end-year study the average achievement was found to be 61.63% in Tamil, 74.45% in Mathematics and 70.62% in English in Class II; and in Class IV, the mean achievement in Tamil was 63.19, 63.01% in Mathematics and in English it was 52.33%. The figures revealed that as compared to the baseline study there was an increase of nearly 25% to 29% in all three subjects in both the classes.

Not all surveys, however, support the MGML/ABLattainmentin raising academic levels. ASERReports are a notable exception. The 2012 Reportunambiguously asserts that Tamil Nadu's ABL has not significantly affected learning levels; it places learning levels in both literacy and numeracy skills are well below average levels in the rest of the country.[25]

A final verdict on learning outcomes in the Tamil Nadu experiment awaits furtherstudies, as does the efficacy of the MGML methodology in general. Comparative studies that factor in the pace and pattern of scale-ups; separating out and evaluating the coherence of curricula

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p. 20

[21]   *A Trigger for Change: An Evaluation of ABL in Tamil Nadu, 2009.* Op. cit.

[22]   *The Hindu Business Line*, July 06, 2012.

[23] Activity-Based Learning in India: Overview, Strengths and Challenges (UNICEF Desk Report, 2013), p. 22

[24]   'Activity Based Learning:Effectiveness of ABL under SSA.' Op. cit.

[25] In the bottom quartile, just above Assam, Bihar, U.P., Jharkhand, Madhya Pradesh, Poducherry and Rajasthan: asercentre.com. <http://img.asercentre.org/docs/Publications/ASER%20Reports/ASER_2012/enrollmentandlearningreportcard.pdf>
ASER(2010) contains a comparative analysis of ASER and Mahapatra's assessments. P 2.

and textbooks supplied by client states; examining the nature of political support for the programme are relevant to eventual outcomes

The 2011 ASER-MHRD-UNICEF-UNESCO study recognizes that education has a larger purpose than what is uncovered by standardized tests in mathematics and language. Listed among the study's 'key policy recommendations' are the following,

- As per RtE, indicators for child-friendly education need to be defined and measured regularly as a part of the markers of quality.'

- Textbooks need urgent revisions. They need to start from what children can do and be more realistic and developmentally appropriate in what children are expected to learn, with clear learning goals and sequence.

- Teacher recruitment policies need to assess teachers' knowledge, but more importantly their ability to explain content to children, make information relevant to their lives and to use teaching learning materials and activities other than the textbook.

The above recommendations are based on the following on the ground observations:

- Child-friendly practices, such as students asking questions, using local examples to explain lessons, small group work, have a significant impact on children's learning.

In what follows we will look at the ABL/MGML programme through the lens of these observations and key policy recommendations.

Raising Student Confidence Levels

A team of investigators associated with Kent State University studied the impact of the ABL programme on the confidence levels of children from marginalized communities. Their study offers the following conclusion:[26]

> One teacher told us that she used to have to plead with children to speak at an assembly. "But now it is not like that. A first grade child will hold the mike and speak comfortably" (Translated from Tamil). Alone, this perceived change in young children's autonomy and confidence represents an impressive transformation. However, when we consider that the majority of children who attend government schools are the poorest in the state and are from Scheduled Castes, this apparent cultural change is all the more stunning.

Thomas Muller from the University of Regensburg, who has introduced the MGML programme for disturbed children, provides a nuanced understanding of why the methodology has a positive effect on children's feelings about themselves. The methodology succeeds, he implies, because it offers the lost child a chance to see herself as moving forward:

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[26]   Tricia Niesz, Ramchandar Krishnamurty: 'A History of Activity Based Learning Movement in Tamil Nadu' <http://docs.ehhs.kent.edu/ABLinTN.pdf>

Learning ladders are shown graphically as predominantly linear. Children are offered a direction and a goal, which create an overview for their own development. 'Something is going on with me' is the central experience that is made by children with behavioural disorders and specifically articulated by themselves: the visual representation of their own learning movement stands in opposition to often manifold experiences of rejection and failure in family and school.[27]

Stakeholder Approval

Severalbut not all reports show that teacher acceptance of the methodology is high.

Teachers displayed an overall positive feedback about ABL. 95% of the teachers felt that children's learning skills have vastly improved because of ABL. While 92% opined that reading proficiency has particularly improved, 90% mentioned that writing skills have also greatly improved. They felt that the self-confidence and decision-making skills of children have greatly improved due to ABL.[28]

The Lily Joseph a teachers in the Nali Kali programme

This process makes them learn on their own, happily. The class atmosphere is notfrightening. He doesn't learn, because of pressure from the teacher. Learning is now a game.[29]

Teachers have taken initiatives to supplement existing cards:

Tamil Nadu teachers have made low cost innovations from drinking straws or old discarded CDs, and in Karnataka 84% of teachers had themselves collected or prepared their own TLMs and brought them to school.[30]

Community Anchor

Rishi Valley's German collaborators maintain that 'The Multigrade-Multilevel Methodology (MGML) offers students and teachers a reliable framework for both individualized and community-oriented education in a school setting. [. . . .] Its primary objective is to help children individualize and become familiar with their own identities as they enter society.'[31]

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[27]   Girg, Ralph; Lichtinger, Ulrike; Muller, Thomas, *Lernen mit Lernleitern*: Unterrichten mit MultigradeMultilevel-Methodology (MGML) Prolog-Verlag: 2012 (Translation by Thomas Muller)

[28]R. Akila, Op. cit.

[29] 'Nali-Kali – A Not So Silent Revolution for Joyful Learning': http://indiagovernance.gov.in<http://indiagovernance.gov.in/files/nail_kali_innovations_in_primary_education_in_karnataka.pdf>

[30]UNICEF Desk Report (2013). Op. cit.

[31]   Ralf Girg, Ulrike Lichtinger, Thomas Muller, *The MultiGradeMulti-Level Methodology and its Global Significance*. S. Roder Verlag, Regensburg, 2011

A recent UNICEF Report sums up multiple assessments of RIVER's Achievements:[32]

- According to research findings, ABL seems to be key in making teachers more friendly and making classrooms attractive and "free from fear and anxiety"
- Evidence tells us that ABL improves social equity by reducing learning gaps among students, promoting social interaction, and reducing social barriers and discrimination
- ABL enables every child to participate in activities, games and songs, to interact within groups, to move at their own pace, and track their own learning progress
- ABL provides a simple model of how to integrate continuous assessment into children's everyday learning to check for understanding

5.The River MGML/ABL Design: Necessary and Contingent Features

Necessary and Contingent Features of the RIVER Methodology

The necessary features of RIVER's MGML, the features that remain constant throughout the scale-up process, are the Ladder Graphic, Classroom Management and Designer's Workshops. The contingent features consist of the content filled out by cards or textbooks. The latter are influenced by theories of learning, cultural features and textual preferences that clients mount onto Ladders.

The Ladder graphic is central to the RIVER pedagogy. It has the flexibility of a template, with a variety of content, based on cultural, linguistic and regional considerations, filled into its flexible spaces. Cards constitute content and are organized in a series according to generally accepted understanding that some skills presuppose others – the ability to add precedes the ability to multiply. Good textbooks are built around the same principle; they take the reader from simpler to more complex areas of a subject.

Each subject, language, mathematics and environmental science, has its own dedicated Ladder. The system – Ladder plus the cards – although configured on the same principles as pedagogically sound textbooks, has one salient difference: the Ladder charts the independent progress of each student through stages of the learning process. It registers this progress in a simple visual display that gives the child a concrete sense of achievement. It is a visual metaphor that has proven to be a very effective motivating factor as each student clearly sees herself moving onward (and upwards!) through the subject. This motivational aspect should not be underestimate; it is underlined by Thomas Muller's use of the Ladder for motivating emotionally disturbed children described above.

Students ascend the steps of a Ladder serially until they are within reach of a milestone, which is the natural point at which the concept they have become acquainted with both directly and indirectly through a rich variety of activities and, in due course having acquired sufficient understanding to apply in varied contexts, is assessed. The assessment determines whether the student needs extra remedial work, or whether she has mastered the concept

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[32]   *Activity-Based Learning In India: Overview, Strengths, & Challenges* (UNICEF Desk Report, 2013)

sufficiently to enrich her current intellectual horizons. At the end of a milestone, the journey resumes at another level, until the student reaches the Ladder's end, whereupon she is deemed to have finished the requirements for class 5. Cumulative assessment in this way is built into the student's journey as she ascends the steps of the Ladder. Continuous and cumulative assessment is part of the student's journey as she progresses.

The contents of the School in a Box explained above can be represented in a graphic form as shown here and summed up in the following way:
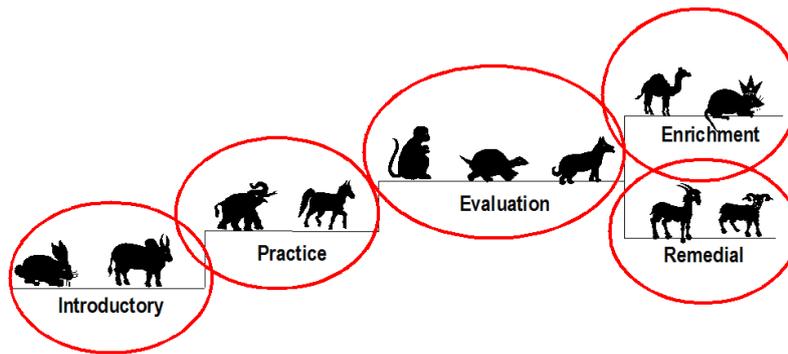

Cards are marked with logos are mapped onto a Ladder marked with milestones.

- The template or schema called the Learning Ladder is divided into steps marked with numbered logos – rabbit-1, bull-1; elephant-1, horse-1; monkey-1, turtle-1; dog-1; dog-1, followed by the enrichment and remediation logos.

- Each marked step on the Ladder is matched to a corresponding card with logo and number. An elephant-2 on the Ladder, for instance, would have its corresponding elephant-2 card.

- Steps on the Ladder are collected into milestones comprising five stages of instruction: Learning a concept; learning to apply it in a variety of ways; evaluating the student's grasp of the concept, and remediation and enrichment activities.

- Evaluation is cumulative and transparent so that teachers do not have to depend on intuition to keep in mind students' progress.

The programme makes room for teacher innovation by allotting almost 40% of spaces on the Ladder to the teachers' discretion. Teachers are free to fill in these spaces with local content or to fulfil a particular student's learning requirements. Teachers have the freedom to skip milestones in case the student is a fast learner, or to add cards to mediate gaps in the students learning process. Flexibility is a hallmark of the MGML programme, and accounts for its potential for scaling up. The Ladder accommodates teachers able to exercise their intuitive capacity to assess the next 'proximal zone' of learning in the case of each student, as well as teachers whose capabilities in this area are insufficiently developed.

Ladders are cast in a variety of shapes; they do not necessarily have to be linear. In fact, the Ladder with its content may be designed in the form of a game board, with paths laid out to incorporate loops and detours,spirals and straight lines, depending on the intention of the

designer. Unlike a game of luck, learning activities here aim at building conceptual understanding and skills. These Ladders, in different configurations, lead children to specific learning goals, through known and unknown territory. RIVER programmes and those created at the University of Regensuburg, for instance, contain interesting combinations of differently configured Ladders.[33] For an Environmental Studies unit, for instance, studying water, the Ladder is represented as a field where linear units are integrated with non-linear elements. While the linear units build conceptual skills, the non-linear ones place the concepts in a multi-dimensional perspective – for instance, field work to list local sources of water, how these water sources are replenished, myths about rivers, pollution of water bodies, and so on.
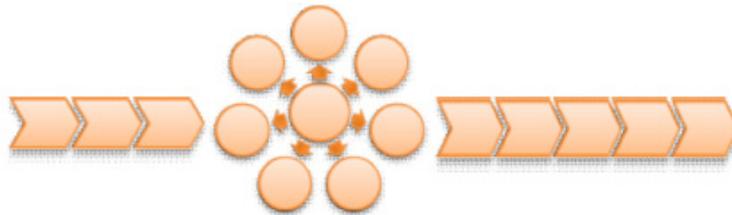
Linear progression combines with a network of related activities around a central theme[34]

The MGML Classroom

In most government schools teachers are at the centre of a typical classroom. Children's attention is largely focused on her as she reads from a textbook, dictates answers to questions posed at the end of the lesson, or writes on the blackboard. A clear space, physical and psychological, divides teacher from students.

A typical MGML classroom has no centre; the teacher is guide, creator, friend, story teller, and mentor but seldom the didactic master lecturing at the head of the classroom we so often see in our schools. Classroom walls are covered with Ladder graphics, and with shelves containing cards. There are multiple blackboards, built low to provide space for each child to write on; an individual student's work becomes an occasion for meaningful conversation between peers. Children's work, paper folds and drawings, found objects hang from the ceiling. Children sit on the floor in clusters. The teacher moves between the groups.

Children work at their own pace, in groups or by themselves.
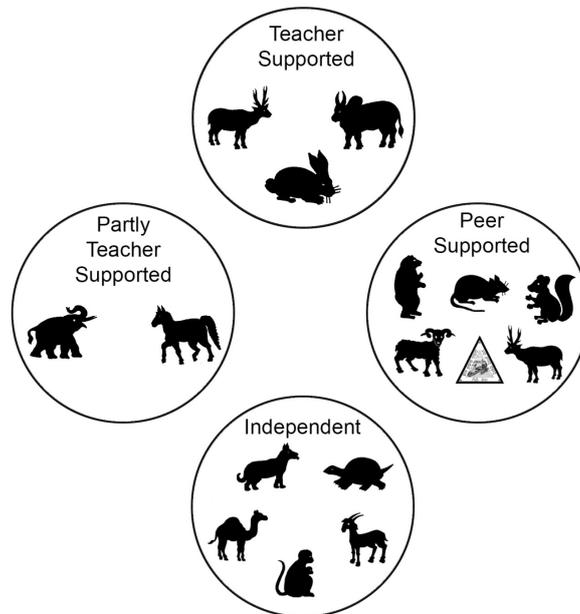
Teachers in the MGML Classroom

Ladders play a dual role: they guide students across a subject along a well-defined conceptual path; they also encrypt for teachers instructions for organising the classroom. In this way, Ladders constitute a complex array of instructions and processes addressing teachers and students.

Each numbered space occupied by a logo denotes an aspect of work, bull icons indicate the learning of new concepts, monkey logos demand evaluative exercises, camels stand for

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[33] Ralf Girg, Ulrike Lichtinger, Thomas Muller, *The MultiGradeMulti-Level Methodology and its Global Significance*. Regensburg: S. Roder Verlag, 2011, pp. 37-43
[34]   Ibid.

enrichment work, elephants for practice, and so on. The logos - bull, monkey, camel, elephant – attached to each numbered step in the Ladder also indicate to students and teachers the sub-group to which the student is assigned, whether she will sit in a teacher-directed group, a partially teacher-assisted group, a peer-assisted group, or to a group consisting of self-learners. In this way, formation of different kinds of student-groups, each suited for different stages of the learning process are cross-referenced by the Ladder, along with the teacher's role with regard to each kind of learning group.

Sub-groups in MGML Classrooms

Students learning a new concept will be part of the Fully-Teacher Supported Group, whatever the students' competency level; students who are learning to apply the concept will be part of a Partly Teacher-Supported; those who have mastered the concept will be clubbed together as independent learners. While group formations within the vertically grouped classroom at Neel Bagh and Sumavanam were ability based[35], sub-groups in RIVER classroom are founded on the kind of activity students engage in as indicated by the logos. In a RIVER classroom, children move frequently between groups depending on whether the concept is being learnt, practised or tested; grouping is dynamic.

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[35]   'Children are split into three groups based on their abilities': Work and Wisdom of Vernacular Educators from India. 10. Usha and T. M. Narasimhan. www.multiworld.org. Horsburgh's statement about the sub-groups is more qualified: 'there are groups which are sometimes formed of individual children who are temporarily at the same of learning, such groups are constantly changing because children learn at different speeds'. (*Neel Bagh*, p. 2) Pearce's classrooms were streamed: children who were at the same level in arithmetic sat in the same classrooms. See accompanying paper 'A History of MGML at Rishi Valley'.

The MGML Methodology does not require teachers 'to adjust the matter and method of his lessons to the majority, those at the average', to quote F. G. Pearce an early principal of Rishi Valley, who experimented in multi-level classes. He was concerned that monograde classes

'ignore one of the most obvious and universal facts about human beings, that no two children (or adults) are ever at exactly the same level in all subjects'.[36] The Ladder, with its numbered logos and correspondingly marked cards, enables a child to trace her own individual path through the learning continuum. Self-learning in the MGLM methodology is a prominent feature of a student's trajectory through a subject. In other words, the methodology 'respects the natural heterogeneity of all children and honours the uniqueness of their learning processes.'

To sum up, he Learning Ladder is described as a template because a template or schema is a representation that allows various kinds of modifications – cards with their logos can be added for remedial purposes; cards can be subtracted in the case of students who are able to leap over certain steps; cards can be introduced based on the teacher's own perception of children's needs as well as her own innovative talent.

The description of the Ladder as template additionally connotes potentiality. Just as templates can be customized across a wide range of contexts, so also Learning Ladders from RIVER classrooms have crossed beyond their home territory. They are used in rural and city schools, in tandem with textbooks, in large classes that have more than one teacher, and in bridge programmes. Most importantly, the Ladder template has shown the potential to embed within the curriculum the multi-cultural diversity, geographical and linguistic variations, as well as artistic aspects of India's heritage.

These specific features of the Ladder make it a flexible instrument, allowing for adaptation to different locales and an effective scaling up of educational programmes. They account for the impressive spread of the MGML methodology to several of India's linguistically diverse states. There are around 200,000 schools practising variants of the methodology. RIVER has collaborated with UNICEF, Government Agencies and NGO groups to 'tarns-create' the methodology in standard Telugu, in a tribal variant of Telugu, in Tamil, Kannada, Malayalam, Hindi, Gujarati, Assamese and Bengali. By 2011, according to a UNICEF Report, around 14 states across India have piloted some form of the methodology. Tamil Nadu and Karnataka have extended the methodology to many districts of the state[37]. There is a group in Ethiopia that worked with RIVER to trans-create the material in the Oromoo language. In Bavaria,Germany the MGML programme has received arguably its most innovative expression.

Designers' Workshop

If the Ladder and classroom management constitute the first two essential features of the MGML methodology, designers' workshops illustrate its potentiality for absorbing diverse content. More importantly, Ladders of Learning, with their inbuilt flexibility, allow for scaling up the programme.

The transfer of the MGML methodology is facilitated through Designer's Workshops that bring together a core group consisting of writers, illustrators, and a team of primary school teachers from NGO groups or State Governments. RIVER instructor's work with these core groups to organize the learning continuum into numbered units with their own characteristic

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[36] F. Gordon Pearce, 'A Note on "Systems' of Academic Instruction.' Rishi Valley Archives.
[37] www.unicef.org<http://www.unicef.org/india/education_3614.htm>

logos; writers create suitably graded reading materials in the linguistic group they belong to; the material is illustrated and finally mapped onto Ladders of Learning in a one-to-one correlation. Mathematics teachers similarly work through the curriculum, marking the materials with numbered logos. Artists illustrate the whole set, with rivers and boats and animals characteristic of the region.

After the initial two levels of materials are ready, teacher trainers receive hands-on training in classroom management in our 12 Satellite Schools. They learn to divide students into groups, not based on ability levels, but on the principles unique to the MGML methodology. The methodology divides students according to the stages of learning: the group that is introduced to new concepts and which requires the teacher's whole attention; group where students are experimenting with the concept where more advanced students can help less proficient ones; and groups where students are learning on their own and the teacher's involvement is minimal.

Teachers who have made two levels of cards and learnt to manage an MGML classroom eventually become 'resource persons' for their home institution. RIVER helps set up two model schools for agencies, such as state governments, that have large numbers of teachers. Teachers, who have learnt the MGML methodology, are the resource persons in these model schools.

Designers Workshops are now the model of training used in Tamil Nadu and Chhattisgarh, where core groups were formed to impart training to other states, including Madhya Pradesh and Gujarat.

The Ladder, in this way fills out in multiple ways with material drawn from the subject discipline and with content based on the curriculum demanded by clients. The most progressive clients honour the knowledge base of the subject and respect ground realities – the educational requirements of impoverished learners, including their culture. In other words, the programme is grounded in the understanding that the poor in India are not rootless but have a culture of music and poetry that are part of a child's consciousness, and which ought to provide the scaffolding on which additional pedagogy builds.

Clients do not always comprehend or honour the reach of a pedagogy rooted in culture. There are political agendas that guide them, ideas of 'low culture' and 'high culture'; there are textbook lobbies; and frequent changes in a client state's educational bureaucracy, all of which become impediments in ensuring progress. The success of the programme depends on the values clients bring to the programme and the strength of purpose dedicated to its implementation.

6. Misconceptions about River MGML Instruction

There are commonly held misleading assumptions about MGML:

   a. Multi-grade is a deficient; it is a temporary measure that must in the long run yield ground to monograde classrooms.

For Maria Montessori in Italy, for F. Gordon Pearce at Rishi Valley in the fifties and for

David Horsburgh's Neel Bagh in the seventies multigrade classrooms was the preferred option. Pearce expressed the limitations of monograde classrooms eloquently when he remarked that a monograde classroom 'encourages the teacher to regard the pupils as a mass, a small block of humanity that can be dealt with effectively with the least possible trouble.'[38]

To disregard Angela Little's argument that the MGML methodology is an appropriate option in situations where there is no correlation between the ages of a child and his or her academic competence is to turn a blind eye to a possible solution for the educational problems the majority of Indian children face today.

b. Children learn on their own; the teacher is 'just' a facilitator at best or an automaton.

In a well set up RIVER multigrade classroom, the teacher is not 'just a facilitator'; she is guide, storyteller and innovator. She is given space on the Ladder to create newer rungs, in case of students require additional building blocks to enhance their learning. The Ladder builds in spaces for teachers to chart regional content, rhymes, riddles and mother's stories children learn at home.

True, the teacher is not the central focus of attention in the classroom. She moves around the classroom helping children, who learn in groups or individually. In the absence of a centralized role for the teacher, the classroom is less authoritarian, more democratic.

. The ladder is a straitjacket in which content is inflexibly strapped

The Ladder can become a straightjacket and the teacher an automaton, if the RIVER MGML is interpreted rigidly, if it represents the content of a textbook, without any space for teacher initiative or children's inventiveness.

It can also become a framework for teachers to innovate and for students to express their creativity without sacrificing core skills that subject disciplines demand.

d. MGML lacks continuous and comprehensive evaluation (CCE).

The charge that, following the RtE requirement for CCE, MGML programme lacks this fundamental feature, is completely misplaced. In fact, continuous assessment with the objective of securing the fundamental features of the knowledge base is an integral part of MGML. Assessment is a necessary feature on the Ladder; at the end of every milestone, a rung is reserved for evaluation. It is placed towards the end of segment of learning, just before students arrive at the rungs representing remediation or enrichment, and before they enter the next level.

Teachers are meant to record the progress of students on separate charts. The record provides easy assess to summative evaluations.

The teacher does not have to compile special tests to assess student performance, remediation is not relegated to after-school hours with teachers left to identify problems and address them. In short, in properly run MGML classrooms families don't fall victim to 'shadow education': a term for private tutoring.The already mentioned Pratichi Report

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[38] 'A Note on "Systems" of Academic Instruction.' Op. cit.

claims that 'students living in both rural and urban India paid an average of INR 1,456-2,349 a year for private coaching classes'. Commenting on the data Sen observed, 'most of the content in the private tutorial classes could and should have been taught in the regular classes of the primary schools.'[39]

7. Conclusion

Several distinctions are crucial towards clearer conceptual understanding of the MGML methodology. These are a distinction between its necessary and contingent features; the distinction between interventions like those of Prathams that remain independent of schools and those that work from within; reform that is scalable. These parameters have their own independent natures and call for independent type of assessments.

Having set aside what the RIVER methodology is not, we can describe its features in positive terms.

- It is inclusive: it accommodates quick learners as well as slow learners and has been tried with children who are emotionally disturbed
- It permits drop-outs to return to school without creating permanent gaps in the learning
- It is flexible and can be customized to suit local requirements
- It provides for continuous and comprehensive assessment
- It facilitates a comparative analysis of schools
- It can be scaled up, without the standardization, such scaled up programmes tend to introduce.

At the end of a long list of apprehensions and misapprehensions we can highlight its chief virtues.

- It is not tied to any particular theory of learning: either constructivist or behaviourist
- It is not tied to any particular pedagogy of language.
- It is not tied to a particular modality of tools, such as, cards, worksheets or textbooks
- It is not tied to linear ordering of the Ladder
- It is not tied to any particular configuration of classrooms
- It is not tied to any particular arrangement of the furniture in classrooms
- It is not tied to super teachers
- It is not tied to one-teacher schools
- It is not meant exclusively for the Developing World
- It is not meant exclusively for rural schools
- It is not meant for impoverished schools.

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[39] *The Hindu Business Line*, July 06, 2012. See fn 20

Embedding MGML in a Social Setting

A Case Study from Rishi Valley

Ladders of Learning constitute the formal features of the MGML programme created at Rishi Valley. Having described the classroom organization inscribed in the Ladder, having accounted for the Ladder's flexibility and its potential for scaling up but before sketching the structure of the workshops conducted by the Raos to transport the methodology to other regions, it will help to show how the methodology is grounded in local cultures.

In its endeavour to address wider problems of rural schooling, such as, high drop-out rates frequent teacher absenteeism, unacceptable levels of failure in examinations, the shortcomings of centralized educational systems, in 1987 Rishi Valley stepped beyond its campus schools. It set up a network of 'Satellite Schools' in remote hamlets in the Valley, where a community-based curriculum could be taught by village youth trained in multigrade methodologies.

Essentially, the overall solution to the problem of rural schooling, it was felt, lay in substituting the idea of schools as isolated institutions with the idea of schools as resource centres for local communities. Working through this conviction meant replacing a teacher-centred, monograde approach with an approach that met the multiple learning needs of children *viewed as members of a community*.

Sri Jaiseetharam, an eminent Telugu poet and teacher from Anantapur, was invited to visit the Satellite Schools to familiarize himself with the speech patterns of the locality with a view to preparing properly graded reading material for teaching Telugu. Our barefoot teachers collected folklore from the Mothers of the community; Rishi Valley commissioned the eminent playwright and storyteller the late Sri Sambasiva Rao to write lyrics for stories from the Panchatantra, which the ethno-musicologist Dr Vinjamuri Seethadevi set to music. Traditional puppeteers from Dharmavaram, customarily invited to perform at local village fairs in times of drought, presented the *Panchatantra* as shadow plays, and subsequently taught students the art of puppetry.

In Rishi Valley's 'satellite schools', the *Panchatantra* provided a base for the reading programme. The plays involved the whole class, with children singing or mouthing lyrics, some manipulating puppets and still others managing the sound effects. In this manner, children learning to read are introduced to vocabulary they had learnt in songs.

Beyond the classroom, satellite school campuses, Chandanavanam, Mitravanam, each bearing the suffix *vanam*, were planted with fruit bearing trees, papayas, *seetaphal* and *jamuns*. They were meant to supplement the nutritional needs of the children and to prevent erosion of the land. Since each of the 12 schools started in completely barren land, but now nurtures re-generated plots, the enterprise is rooted in ecological concerns.

Rishi Valley's campus, isolated communities are linked organically to the Rishi Valley campus on the one hand and to each other to form a network of associations. Boys and girls at risk joined Rishi Vanam, a Middle School on campus, as borders; students from Satellite Schools attend the computer lab, the satellite school children compete at the annually held sports meet; and the satellite schoolteachers attend refresher courses held on campus.

The school network and the experience of learning together is clearly demonstrated by the way the communities host, and actively participate in a 'Math Mela', a mathematics festival that borrows its celebratory air from village fairs. Parents and students of the school organize the fair; they set up kiosks with weighing machines, rulers, weights and measures; they decide what foods will be cooked and sold. Children buy, sell, measure hands and feet, noses and the length of arms. They add, subtract, multiply, and work out averages.

Over the years, RIVER has interacted with numerous language groups with varied cultures and multiple ideas of what constitutes good pedagogical instruction. The experience has enriched RIVER's understanding of the MGML methodology, and resulted in a significant pool of pedagogical ideas suitable for multilevel classrooms.